

IN THE CLAIMS

Please cancel claims 1-12 without prejudice

Please add claims 13-24 as follows:

1
2
3 13. Process for measuring three-dimensional objects in a three-dimensional environment,
4 consisting of taking at least one image by at least one camera and creating a representation of the
5 environment based on an analysis of the image, characterized in that the analysis comprises
6 detection of discontinuities in the appearance of the image, a combination of discontinuities
7 detected at geometric contours defined on the image by parameters, an adjustment of contours to
8 discontinuities by varying the parameters, an estimate of the shape and position in the environment
9 showing the said objects.

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1 14. Measurement process according to claim 13, characterized in that the geometric
2 contours include the dot, the straight line, the ellipse, and objects include a circle, cylinder, straight
3 line and dot.

1 15. Process according to claim 14, characterized in that the parameters include plane
2 Cartesian coordinates, angles and lengths.

1 16. Process according to claim 13, characterized in that it converts images into potential
2 images of image dots, the potential being calculated to give an extreme value at discontinuities, in
3 order to detect appearance discontinuities in the image.

1 17. Process according to claim 16, characterized in that the potential includes a term
2 taking account of areas with very low intensity of shades of gray on the images.

1 18. Process according to claim 13, characterized in that the estimated position of objects
2 is improved by estimating the position of the camera based on the representation of the environment
3 and the camera image.

1 19. Process according to claim 13, characterized in that it includes initial estimates of
2 object or camera positions starting from information input manually or in a computer description
3 file.

1 20. Process according to claim 13, characterized in that it includes a repetition of
2 detection, combination, adjustment and estimating steps for each image, the representation of the
3 environment being corrected by object position corrections for each image.

1 21. Process according to claim 20, characterized in that the contours of objects in the
2 representation of the environment are projected in each new image before detection of
3 discontinuities in the appearance of the said new image.

1 22. Process according to claim 21, characterized in that the said projected contours are
2 adjusted on image appearance discontinuities.

1 23. Process according to claim 20, characterized by additions of geometric contours and
2 geometric objects projecting onto the said contours for at least some of the new images.

1 24. Process according to claim 18, characterized by a correction to the position of objects,
2 estimating positions of the projection of objects on the images based on the positions of the camera
3 when the corresponding images were taken, and adjusting the estimated projection positions using
4 the projection positions measured on the images.

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